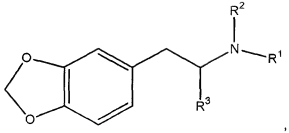
CLAIMS

1. A compound having a structure



wherein:

R^1 is –J-M-T;

R^2 is selected from the group consisting of hydrogen, an alkyl group, and a protecting group; and

R^3 is an optionally substituted alkyl group; wherein

J comprises 1-15 carbon atoms and 0-6 heteroatoms;

M is selected from the group consisting of –O–, –CO–, $–NR^4–$, –S–, –C(=NH)O–, –NH(CO)–, –NH(CO)NH–, –NH(CS)–, –NH(CS)NH–, –O(CO)NH–, –NH(C=NH)–, and maleimidothioether, wherein R^4 is selected from the group consisting of hydrogen and an alkyl group; and

T is selected from the group consisting of hydrogen, a hydroxyl, a leaving group, a macromolecular carrier, and a label;

with the proviso that R^1 is not $–CH_2CN$, $–CH_2C{=}CH_2$, –CHO, $–CH_2CH_2OH$, $–CH_2CH_2OCH_3$, or $–CH_2CCH$ when R^2 is hydrogen and when R^3 is methyl.

2. The compound of claim 1 wherein the macromolecular carrier is selected from the group consisting of a protein, a polypeptide, and a polysaccharide.

3. The compound of claim 2 wherein the protein is selected from the group consisting of keyhole limpet hemocyanin, bovine serum albumin, and bovine thyroglobulin.

4. The compound of claim 1 wherein J comprises 1-11 carbon atoms.

5. The compound of claim 4 wherein J is $-(CH_2)_k-$ and k is 1, 2, 3, 4, 5, or 6.

6. The compound of claim 5 wherein R^2 is selected from the group consisting of hydrogen, methyl, ethyl, and a protecting group, and R^3 is selected from the group consisting of methyl, ethyl, n-propyl, and n-butyl.

7. The compound of claim 6 wherein k is 3 and M is –CO–.

8. The compound of claim 7 wherein T is a leaving group.

9. The compound of claim 7 wherein R^2 is hydrogen or a protecting group, and R^3 is methyl.

10. The compound of claim 7 wherein T is a leaving group comprising N-oxysuccinimide.

11. The compound of claim 10 wherein R^2 is hydrogen or a protecting group, and R^3 is methyl.

12. The compound of claim 7 wherein T is a macromolecular carrier selected from the group consisting of a hemocyanin, a globulin, an albumin, and a polysaccharide.

13. The compound of claim 12 wherein R^2 is hydrogen or a protecting group, and R^3 is methyl.

14. The compound of claim 9 wherein R^2 is TFA and T is N-oxysuccinimide.

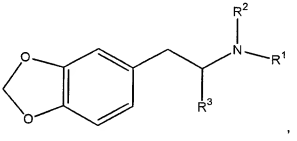
15. The compound of claim 9 wherein R^2 is TFA and T is hydroxyl.

16. The compound of claim 9 wherein R^2 is hydrogen, and wherein T is a polysaccharide or a protein selected from the group consisting of keyhole limpet hemocyanin, bovine serum albumin, and bovine thyroglobulin.

17. An antibody specific for an ecstasy drug.

18. The antibody of claim 17 wherein the ecstasy drug is selected from the group consisting of MDA, MDMA, MDEA, MDPA, BDB, MBDB, and combinations thereof.

19. An antibody specific for an analyte wherein the analyte comprises a structure



wherein:

R^1 is –J-M-T;

R^2 is selected from the group consisting of hydrogen, an alkyl group, and a protecting group; and

R^3 is an optionally substituted alkyl group; wherein

J comprises 1-15 carbon atoms and 0-6 heteroatoms;

M is selected from the group consisting of –O–, –CO–, –NR^4–, –S–, –C(=NH)O–, –NH(CO)–, –NH(CO)NH–, –NH(CS)–, –NH(CS)NH–, –O(CO)NH–, –NH(C=NH)–, and maleimidothioether, wherein R^4 is selected from the group consisting of hydrogen and an alkyl group; and

T is selected from the group consisting of hydrogen, a hydroxyl, a leaving group, a macromolecular carrier, and a label.

20. The antibody of claim 19 wherein the macromolecular carrier is selected from the group consisting of a protein, a polypeptide, and a polysaccharide.

21. The antibody of claim 19 wherein J comprises 1-11 carbon atoms.

22. The antibody of claim 21 wherein J is $–(CH_2)_k–$ and k is 1, 2, 3, 4, 5, or 6.

23. The antibody of claim 22 wherein R^2 is selected from the group consisting of hydrogen, methyl, ethyl, and a protecting group, and R^3 is selected from the group consisting of methyl, ethyl, n-propyl, and n-butyl.

24. The antibody of claim 23 wherein k is 3 and M is –CO–.

25. The antibody of claim 24 wherein T is a macromolecular carrier selected from the group consisting of a hemocyanin, a globulin, an albumin, and a polysaccharide.

26. The antibody of claim 24 wherein R^2 is hydrogen or a protecting group, and R^3 is methyl.

27. The antibody of claim 26 wherein T is a macromolecular carrier selected from the group consisting of a hemocyanin, a globulin, an albumin, and a polysaccharide.

28. The antibody of claim 26 wherein R^2 is TFA and T is N-oxysuccinimide.

29. The antibody of claim 26 wherein R^2 is TFA and T is hydroxyl.

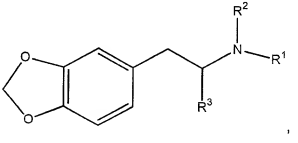
30. The antibody of claim 26 wherein R^2 is hydrogen and T is a protein selected from the group consisting of keyhole limpet hemocyanin, bovine serum albumin, and bovine thyroglobulin.

31. A reagent kit comprising the antibody of claim 17.

32. A reagent kit comprising the antibody of claim 19.

33. A reagent kit comprising the antibody of claim 27.

34. A method of producing an antibody comprising inoculating a host with an immunogen comprising a structure



wherein:

R^1 is –J-M-T;

R^2 is selected from the group consisting of hydrogen, an alkyl group, and a protecting group; and

R^3 is an optionally substituted alkyl group; wherein

J comprises 1-15 carbon atoms and 0-6 heteroatoms;

M is selected from the group consisting of –O–, –CO–, $–NR^4–$, –S–, –C(=NH)O–, –NH(CO)–, –NH(CO)NH–, –NH(CS)–, –NH(CS)NH–, –O(CO)NH–, –NH(C=NH)–, and maleimidothioether, wherein R^4 is selected from the group consisting of hydrogen and an alkyl group; and

T is a macromolecular carrier.

35. The method of claim 34 wherein T is selected from the group consisting of hemocyanins, globulins, and albumins.

36. The method of claim 34 wherein J comprises 1-11 carbon atoms.

37. The method of claim 36 wherein J is $–(CH_2)_k–$ and k is 1, 2, 3, 4, 5, or 6.

38. The method of claim 37 wherein R^2 is selected from the group consisting of hydrogen, methyl, ethyl, and a protecting group, and R^3 is selected from the group consisting of methyl, ethyl, n-propyl, and n-butyl.

39. The method of claim 38 wherein k is 3 and M is –CO–.

40. The method of claim 39 wherein R^2 is hydrogen or a protecting group, and R^3 is methyl.

41. The method of claim 40 wherein T is selected from the group consisting of keyhole limpet hemocyanin, bovine serum albumin, and bovine thyroglobulin.

42. A method of detecting an analyte in a sample comprising:
contacting the sample with the antibody of claim 17;
binding the antibody to the analyte; and
detecting an adduct formed by the antibody and the analyte.

43. The method of claim 42 wherein the analyte is selected from the group consisting of an amphetamine, an amphetamine derivative, an ecstasy drug, an ecstasy drug derivative, and combinations thereof.

44. The method of claim 43 wherein the ecstasy drug is selected from the group consisting of MDA, MDMA, MDEA, MDPA, BDB, MBDB, and combinations thereof.

45. A method of detecting an analyte in a sample comprising:
contacting the sample with the antibody of claim 18;
binding the antibody to the analyte; and
detecting an adduct formed by the antibody and the analyte.

46. The method of claim 45 wherein the analyte is selected from the group consisting of an amphetamine, an amphetamine derivative, an ecstasy drug, an ecstasy drug derivative, and combinations thereof.

47. The method of claim 46 wherein the ecstasy drug is selected from the group consisting of MDA, MDMA, MDEA, MDPA, BDB, MBDB, and combinations thereof.

48. A method of detecting an analyte in a sample comprising:
contacting the sample with the antibody of claim 19;

binding the antibody to the analyte; and
detecting an adduct formed by the antibody and the analyte.

49. The method of claim 48 wherein the analyte is selected from the group consisting of amphetamine, amphetamine derivatives, ecstasy drugs, an ecstasy drug derivative, and combinations thereof.

50. The method of claim 49 wherein the ecstasy drug is selected from the group consisting of MDA, MDMA, MDEA, MDPA, BDB, MBDB, and combinations thereof.